

ABSTRACT OF THE DISCLOSURE

A communications system including a base station and a mobile unit wherein a size of information bits is negotiated between the base station and the mobile unit, an encoder encoding the information bits according to Reed-Muller codes, and a permuter permuting the encoded information bits. The information bits are transmitted between the base station and the mobile unit with the negotiated size. The communications system according to the present invention further comprises a depermuter depermuting the transmitted information bits, a transformer transforming the depermuted information bits with a reduced order determined according to the negotiated size, and a maximum likelihood (ML) decoder decoding the transmitted information bits.